

CLAIMS

1. A method of polling in a packet-based data communications system (10),
said communications system (10) comprising a base station system (20)
5 polling connected user equipment (30), wherein said polling is performed
according to:
a first type of polling (T1) allowing said user equipment (30) to choose
whether or not to transmit a user data packet (UP) to the base station system
(20) in response to reception of polling of the first type (T1), and
10 a complementary second type of polling (T2) requiring the user equipment
(30) to transmit a user data packet (UP) or a dummy data packet (DP) to the
base station system (20) in response to reception of polling of the second type
(T2).
- 15 2. A method according to claim 1, wherein said base station system (20)
performs polling according to the first type (T1) on a first logical channel, and
performs polling according to the complementary second type (T2) on a second
logical channel.
- 20 3. A method according to claim 1 or 2, wherein the base station system (20)
transmits polling information to said user equipment (30), said information
enabling the user equipment (30) to identify the polling type of the received
polling.
- 25 4. A method according to claim 3, wherein said polling information from the
base station system (20) is based on a current radio traffic situation in the
communication system (10).
- 30 5. A method according to any of the preceding claims, wherein said first type
(T1) comprises polling with an upstate flag and said second type (T2)
comprises polling with a control block.

6. A method according to any of the preceding claims, wherein the communications system (10) is selected from at least one of:

a General Packet Radio Service (GPRS) communication system,

an Enhanced GPRS (EGPRS) communication system,

5 a GPRS/Enhanced Data rates for GSM (Global System for Mobile communications) Evolution (EDGE) communications system,

a Wideband Code Division Multiple Access (W-CDMA) communications system,

a CDMA2000 communications system,

10 a Wireless Local Area Network (W-LAN) communications system.

7. A method according to any of the preceding claims, wherein said user equipment (30) in response to reception of said polling of the second type (T2) transmits a user data packet (UP) to the base station system (10) if said user data packet (UP) is available for transmission in the user equipment (30),
15 otherwise the user equipment (30) transmits the dummy data packet (DP).

8. A method according to any of the preceding claims, wherein said user data packet (UP) comprises user payload data and said dummy data packet (DP) comprises data enabling the base station system (20) to identify the user equipment (30).
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9. A method according to any of the preceding claims, wherein said user equipment (30) in response to reception of said polling of type one (T1) shall send a user data packet (UP) to the base station system (10) if said user data packet (UP) is available for transmission in the user equipment (30).
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10. A method according to any of the preceding claims, wherein said user equipment (30) in response to reception of said polling of type one (T1) shall send no data packet, neither user data packet (UP) nor a dummy data packet (DP) to the base station system (20) if said user data packet (UP) is not available for transmission in the user equipment (30).
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11. A polling arrangement (40) in a base station system (20) of a packet-based communications system (10), said polling arrangement (40) being adapted to polling of user equipment (30), wherein said arrangement comprises:

5 first means (44) for polling according to a first type (T1), allowing the user equipment (30) to choose whether or not to transmit a user data packet (UP) in response to reception of the polling, and

complementary second means (46) for polling according to a second type (T2), requiring the user equipment (30) to transmit the user data packet (UP) or a dummy data packet (DP) in response to reception of the polling.

10 12. A polling arrangement according to claim 11, wherein said arrangement is adapted to perform polling according to the first type (T1) on a first logical channel, and to perform polling according to the complementary second type (T2) on a second logical channel.

15 13. A polling arrangement according to claim 11 or 12, wherein the arrangement (40) is adapted to transmit polling information to said user equipment (30), said information enabling the user equipment (30) to identify the polling type of the received polling.

20 14. A polling arrangement according to claim 13, wherein the polling information is based on a current radio traffic situation in the communication system (10).

25 15. A base station system (20) in a packet-based data communications system (10), said base station system being adapted to polling connected user equipment (30), wherein said base station system comprises

- first means (44) adapted for polling according to a first type (T1), and
 - complementary second means (46) adapted for polling according to a
- 30 second type (T2).

16. A base station system (20) according to claim 15, wherein said base station system (20) comprises third means (23) adapted for analyzing the

current radio traffic situation in the communications system (10) and for determining which type of polling to transmit.

17. A base station system (20) according to claim 15 or 16, wherein said base station system (20) is adapted to perform polling according to the first type (T1) on a first logical channel, and to perform polling according to the complementary second type (T2) on a second logical channel.

18. A base station system (20) according to any of claims 15-17, wherein the base station system (20) is adapted to transmit polling information to said user equipment (30), said information enabling the user equipment (30) to identify the polling type of the received polling.

19. A base station system (20) according to claim 18, wherein said polling information is based on a current radio traffic situation in the communication system (10).

20. A base station system (20) according to any of claims 15-19, wherein the communications system (10) is selected from at least one of:

- a General Packet Radio Service (GPRS) communication system,
- an Enhanced GPRS (EGPRS) communication system,
- a GPRS/Enhanced Data rates for GSM (Global System for Mobile communications) Evolution (EDGE) communications system,
- a Wideband Code Division Multiple Access (W-CDMA) communications system,
- a CDMA2000 communications system,
- a Wireless Local Area Network (W-LAN) communications system.

21. A base station system node in a packet-based data communications system (10), said node being adapted to polling connected user equipment (30), wherein said node comprises

- first means (44) adapted for polling according to a first type (T1), and
- complementary second means (46) adapted for polling according to a

second type (T2).

22. A user equipment (30) in a packet-based data communications system (10), said user equipment (30) being adapted to receive polling from a base station system (20) in said communications system (10), wherein the user equipment (30) comprises:

first means (34) for receiving and responding to polling of a first type (T1), said first means being adapted for optional transmission of a user data packet (UP) to the base station system (20) in response to said polling, and

10 complementary second means (36) for receiving and responding to polling of a second type (T2), said second means being adapted to mandatory transmit the user data packet (UP) or a dummy data packet (DP) to the base station system (20) in response to the polling.

15 23. A user equipment according to claim 22, wherein said equipment (30) further comprises third means (31) for identifying the polling type.

24. A user equipment (30) according to claim 22, wherein said equipment (30) further comprises:

20 -a buffer unit (33) for storing user data packets (UP) awaiting transmission.

25 25. A user equipment (30) according to claim 24, wherein said first means (34) and said second means (36) are adapted to check if there are any user data packets (UP) in the buffer (33) in response to polling from the base station system (20).

26. A user equipment (30) according to any of claims 22-25, wherein

said first means (34) are further adapted to receive polling according to said first type (T1) on a first logical channel, and

30 said second means (36) are further adapted to receive polling according to said second type (T2) on a second logical channel.

27. A system for polling in a packet-based data communications system (10) adapted to polling said system comprising:

means (40) adapted for polling user equipment (30) in said communications system according to a first type (T1) and a complementary
5 second type (T2),

first responding means (34) adapted for optionally transmitting a user data packet (UP) from said user equipment (30) to a base station system (20) in response to reception of polling according to said first type (T1), and

complementary second responding means (36) adapted for obligatory
10 transmission of the user data packet (UP) or a dummy data packet (UP) to the base station system (20) in response to reception of polling according to said complementary second type (T2).

28. A system according to claim 27, wherein the system further comprises:

15 control means (23) adapted for analyzing the radio traffic situation in the packet-based data communication system, and for selecting which type of polling to perform.

29. A system according claim 26 or 27, wherein the communications system
20 (10) is selected from at least one of:

a General Packet Radio Service (GPRS) communication system,
an Enhanced GPRS (EGPRS) communication system,
a GPRS/Enhanced Data rates for GSM (Global System for Mobile
communications) Evolution (EDGE) communications system,

25 a Wideband Code Division Multiple Access (W-CDMA) communications system,

a CDMA2000 communications system,

a Wireless Local Area Network (W-LAN) communications system.

AMENDED CLAIMS

**[received by the International Bureau on 18 June 2004 (18.07.2004)
The original claim 15 to 21 were amended; the others remain unchanged.]**

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15. A base station system (20) in a packet-based data communications system (10), said base station system being adapted to polling connected user equipment (30), wherein said base station system comprises

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- first means (44) adapted for polling according to a first type (T1), said first polling type (T1) allowing said user equipment (30) to choose whether or not to transmit a user data packet (UP) to the base station system (20) in response to reception of polling of the first type (T1) and

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- complementary second means (46) adapted for polling according to a second type (T2), said second polling type (T2) requiring the user equipment

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(30) to transmit a user data packet (UP) or a dummy data packet (DP) to the base station system (20) in response to reception of polling of the second type (T2).

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16. A base station system (20) according to claim 15, wherein said base station system (20) comprises third means (23) adapted for analyzing the current radio traffic situation in the communications system (10) and for determining which type of polling to transmit.

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17. A base station system (20) according to claim 15 or 16, wherein said base station system (20) is adapted to perform polling according to the first type (T1) on a first logical channel, and to perform polling according to the complementary second type (T2) on a second logical channel.

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18. A base station system (20) according to any of claims 15-17, wherein the base station system (20) is adapted to transmit polling information to said user equipment (30), said information enabling the user equipment (30) to identify the polling type of the received polling.

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19. A base station system (20) according to claim 18, wherein said polling information is based on a current radio traffic situation in the communication system (10).

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20. A base station system (20) according to any of claims 15-19, wherein the communications system (10) is selected from at least one of:

- a General Packet Radio Service (GPRS) communication system,
- an Enhanced GPRS (EGPRS) communication system,
- a GPRS/Enhanced Data rates for GSM (Global System for Mobile

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communications) Evolution (EDGE) communications system,
a Wideband Code Division Multiple Access (W-CDMA) communications system,
a CDMA2000 communications system,

a Wireless Local Area Network (W-LAN) communications system.

21. A base station system node in a packet-based data communications system (10), said node being adapted to polling connected user equipment (30), wherein said node comprises

- first means (44) adapted for polling according to a first type (T1), said first polling type (T1) allowing said user equipment (30) to choose whether or not to transmit a user data packet (UP) to the base station system (20) in response to reception of polling of the first type (T1) and

- complementary second means (46) adapted for polling according to a second type (T2), said second polling type (T2) requiring the user equipment (30) to transmit a user data packet (UP) or a dummy data packet (DP) to the base station system (20) in response to reception of polling of the second type (T2).

22. A user equipment (30) in a packet-based data communications system (10), said user equipment (30) being adapted to receive polling from a base station system (20) in said communications system (10), wherein the user equipment (30) comprises:

first means (34) for receiving and responding to polling of a first type (T1), said first means being adapted for optional transmission of a user data packet (UP) to the base station system (20) in response to said polling, and

complementary second means (36) for receiving and responding to polling of a second type (T2), said second means being adapted to mandatory transmit the user data packet (UP) or a dummy data packet (DP) to the base station system (20) in response to the polling.

23. A user equipment according to claim 22, wherein said equipment (30) further comprises third means (31) for identifying the polling type.

24. A user equipment (30) according to claim 22, wherein said equipment (30) further comprises:

-a buffer unit (33) for storing user data packets (UP) awaiting transmission.

25. A user equipment (30) according to claim 24, wherein said first means (34) and said second means (36) are adapted to check if there are any user data packets (UP) in the buffer (33) in response to polling from the base station system (20).

26. A user equipment (30) according to any of claims 22-25, wherein said first means (34) are further adapted to receive polling according to said first type (T1) on a first logical channel, and said second means (36) are further adapted to receive polling according to said second type (T2) on a second logical channel.

27. A system for polling in a packet-based data communications system (10) adapted to polling said system comprising:

means (40) adapted for polling user equipment (30) in said communications system according to a first type (T1) and a complementary second type (T2),

first responding means (34) adapted for optionally transmitting a user data packet (UP) from said user equipment (30) to a base station system (20) in response to reception of polling according to said first type (T1), and

complementary second responding means (36) adapted for obligatory transmission of the user data packet (UP) or a dummy data packet (UP) to the base station system (20) in response to reception of polling according to said complementary second type (T2).

28. A system according to claim 27, wherein the system further comprises:

control means (23) adapted for analyzing the radio traffic situation in the packet-based data communication system, and for selecting which type of polling to perform.

29. A system according claim 26 or 27, wherein the communications system (10) is selected from at least one of:

a General Packet Radio Service (GPRS) communication system,
an Enhanced GPRS (EGPRS) communication system,
a GPRS/Enhanced Data rates for GSM (Global System for Mobile
communications) Evolution (EDGE) communications system,
a Wideband Code Division Multiple Access (W-CDMA) communications
system,
a CDMA2000 communications system,
a Wireless Local Area Network (W-LAN) communications system.
